

Appendix A

The Observe-Orient-Decide-Act (OODA) Cycle

The OODA cycle describes the basic sequence that occurs when commanders make decisions. (See figure A-1.) This concept relies heavily on extensive research into adversarial “decision-action” cycles in aerial combat. Certain conclusions from the OODA cycle apply to any two-sided conflict, whether between individuals in hand-to-hand combat or large military formations. Used to describe command and control of land forces, however, it vastly simplifies an extremely complicated process. Nevertheless, it can be used to show how command and control works. It emphasizes the importance of the commander as the decisionmaker—the crucial element in command and control.

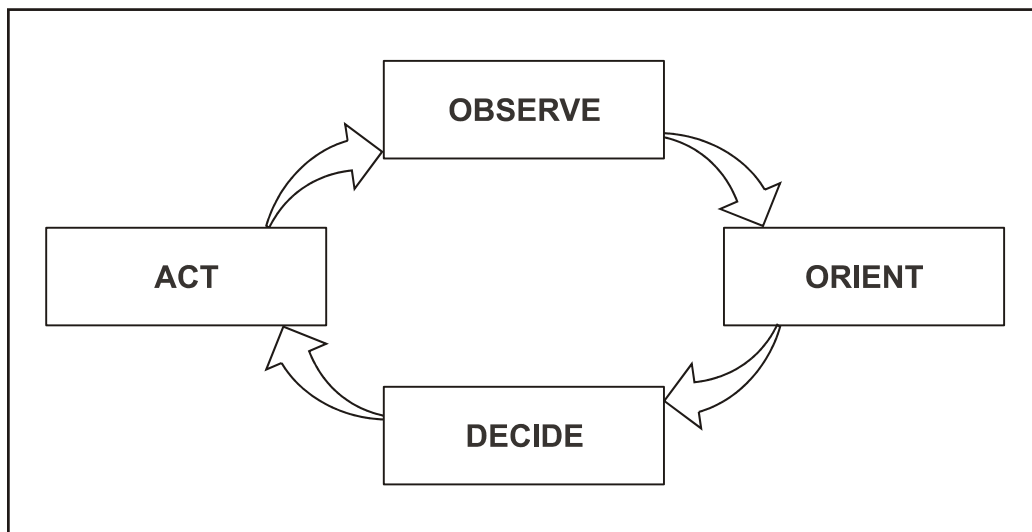


Figure A-1. The OODA Cycle

A-1. During operations, commanders first *observe* the situation—that is, they collect information. They learn about the status of their own forces, the environment, and the enemy through intelligence, surveillance, reconnaissance, information systems (INFOSYS), and reports from other headquarters. Sometimes they actively seek information; sometimes the command and control (C2) system disseminates it to them.

A-2. Having observed the situation, commanders next *orient* to it by achieving situational understanding based on the common operational picture (COP) and staff running estimates. During this activity, commanders develop their commander’s visualization based on their situational understanding. However, this orientation is rooted in what the commander

believes to be the current reality of the area of interest. Since these sources of information are all imperfect and may be manipulated by enemies (creating fog), a commander's perception of reality will inevitably differ from absolute reality. Thus, commanders constantly strive to validate their commander's visualization. (See figure 6-4 on page 6-7.) At the same time, they recognize the inherent uncertainty in their commander's visualization and the advantages to gain by increasing the enemy's level of uncertainty. Employing information operations is one way to do this. The outcome of successful orientation is improved situational understanding.

A-3. Based on their orientation, commanders make a deliberate or hasty plan, deciding what to do and how to do it. The decisionmaking will be intuitive or analytic, depending on the situation. Commanders put their decision into action by disseminating it through execution information—orders or plans—supervising to ensure proper execution, and assessing results through feedback from the COP and staff running estimates. This assessment returns them to the observation activity. Having acted, changed the situation, and caused the enemy to react, they observe the enemy's reaction and their own forces' actions, and begin the cycle again.

A-4. The OODA cycle is continuous, rather than sequential: all its activities occur simultaneously. Commanders collect information, assess, and make decisions while subordinate commanders execute actions. All commanders, at all levels on all sides, engage in the cycle simultaneously throughout an operation. Actions taken as a result of these cycles continuously change the situation in the area of operations.

A-5. The OODA cycle accurately portrays C2 as a continuous process. It demonstrates that the antagonist who can consistently and effectively cycle through the process faster—that is, maintain a higher tempo—gains an ever-increasing advantage with each cycle. With each cycle, the slower antagonist falls further and further behind becoming increasingly unable to cope with the deteriorating situation. With each cycle, the slower antagonist's actions become less relevant to the true situation. His C2 deteriorates because his decisions become less and less appropriate, either in substance or in timeliness.

A-6. The important lesson of the OODA cycle is to generate tempo by shortening the time needed to plan, prepare, and execute. It is not absolute speed that matters, but speed relative to the enemy: the aim is to be faster than the enemy. Commanders can achieve this by interfering with the enemy's C2 as well as streamlining their own C2. The speed advantage does not necessarily have to be a great one: a small advantage exploited repeatedly can quickly lead to decisive results. The ability and desire to generate a higher tempo does not mean commanders should act when the situation calls for waiting. The aim is meaningful—not merely rapid—action. A decision to act is meaningful only if that act has a significant effect on the enemy. Rapid but ineffectual actions accomplish nothing.

A-7. There is one caveat to applying the OODA cycle directly to land operations. The OODA cycle was developed to explain air combat between fighter aircraft, not land operations. When pilots decide to initiate action, they directly maneuver their aircraft. In comparison, land force commanders do

not directly initiate actions; they issue directions to subordinate commanders, each of whom performs the OODA cycle. In land operations, commanders at each level must execute the OODA cycle before the force as a whole responds to an order from the overall force commander.

A-8. The OODA cycle is especially appropriate to decisionmaking during execution. The continuous cycle of *see first, understand first, act first, and finish decisively* reflects the OODA cycle and focuses on the specific requirements of modern operations. “See first” equates to the “observe” activity but emphasizes accomplishing it before the enemy does. Similarly, “understand first” equates to “orient,” again emphasizing the need to accomplish it before the enemy. Collaboration, discussion, and sharing of knowledge related to the COP are means of doing this. Orienting includes understanding the intent of enemies and others who attempt to shape friendly operations to their benefit or friendly disadvantage. “Act first” includes both the “decide” and “act” activities, as acting requires decisions, whether analytic or intuitive, to guide actions. The commander, through the C2 system, synchronizes and integrates the battlefield operating systems as well as directing execution within the higher commander’s intent. Finally, “finish decisively” corresponds to the “act” activity. It emphasizes applying relentless pressure, following up and exploiting initial blows, and exercising subordinates’ initiative.